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Submitted by:	Atty. Docket No.	Serial No.
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	Filing Date	Group

U.S. PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Name	Class	Sub Class	Filing Date (if approp.)
	4244710	01/1981	Burger	55	6	
	4357151	11/1982	Helfritch et al	55	6	
	4768423	09/1988	Boeger	98	2.11	
	4940470	07/1990	Jaisinghani et al	55	2	
	5268009	12/1993	Thompson et al	96	67	
	5403383	04/1995	Jaisinghani	95	69	
	5433772	07/1995	Sikora	96	87	
	5549735	08/1996	Coppom	96	63	
	5948355	09/1999	Fujishima et al	422	4	

FOREIGN PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Country	Class	Subclass	Translation Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Examiner |Date Considered

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Another object of the present invention is to provide an air-purifying filter capable of effectively purifying a gas containing NOx, CO, sulfur compounds and cigarette odor.

European Patent
162022

November 21, 1985 , Issue No.: 198547

Multiple filter unit, particularly for ventilation and air conditioning systems for motor vehicles and closed environments, and provided with efficiency checking means

GERMAN-TITLE: Vielfacher Filter, insbesondere fur Ventilation und Luftkonditionierungsanlagen fur Kraftwagen und geschlossene Raume versehen mit wirksamen Kontrollmitteln ,

FRENCH-TITLE: Unite filtrante multiple pour la ventilation et le conditionnement d'air pour vehicules a moteur et environnements clos et pourvue de moyens de controle efficaces ,

INVENTOR: Cantoni, Maria Cristina - Via Vitaliano Brancati 51 , I- 00144 Rome , Italy (IT)

APPL-NO: 85830112

DESIGNATED STATES: Austria (AT), Belgium (BE), Switzerland (CH), Germany (DE), France (FR), Great Britain (GB), Liechtenstein (LI), Luxembourg (LU), Netherlands (NL), Sweden (SE)

FILED-DATE: May 10, 1985

... present invention is to provide a compact, complete and easily replaceable filter unit, provided with means for monitoring the efficiency and/or operativeness of the filter, which can be easily inserted into the air inlet duct of a vehicle or into the air inlet duct or intake port of a closed-environment ventilating or air conditioning unit, for treating the air coming from the outside and purifying it before the same is introduced into the environment.

More specifically, it is the object of the ...

... as means for facilitating gripping of the filter unit for replacement purposes.

According to a preferred embodiment of the invention, it is possible to insert into the air inlet duct for the internal ventilation of a motor vehicle a multiple filter unit in the form of a complete interchangeable and entirely replaceable unit, comprising a substantially rigid casing, for example of cardboard, plastics material or the like, having a cross- ...

... element constituted by a catalyst for mainly removing CO.

A filter element can also be impregnated with deodorant substances or mixed with deodorant granular particles for the elimination of bad odours from the automobile passenger compartment.

September 7, 1999

Air-purifying **filter** and **air**-purifier for **automobile**

INVENTOR: Fujishima, Akira, 710-5, Nakamaruko Kawasaki, 211, JPX; Hashimoto, Kazuhito, 2073-2-D213, Iijima-cho Yokohama, 244, JPX; Moroto, Shuzo, Aichi-ken, JPX; Ando, Masao, Aichi-ken, JPX; Sakai, Masako, Aichi-ken, JPX

CERT-CORRECTION: September 4, 2001, a Certificate of Correction was issued for this patent

APPL-NO: 08917514

FILED-DATE: August 26, 1997

GRANTED-DATE: September 7, 1999

PRIORITY: August 30, 1996 - 8-248887, Japan (JP)

ASSIGNEE-AT-ISSUE: Fujishima, Akira, Kawasaki; Hashimoto, Kazuhito, Yokohama; KabushikiKaisha Equos Research, Tokyo, JPX; Aisin Aw Co., Ltd., Anjo, JPX

What is claimed is:

1. An air-purifying filter comprising a carrier base and a composite catalyst supported on said carrier base, said carrier base defining an airflow path through said filter and having first and second sides relative to the airflow path and said composite catalyst consisting of a photocatalyst and a platinum group catalyst supported on said photocatalyst, said platinum group catalyst in said composite catalyst existing in a relatively small quantity at the first side of said carrier base and in a greater quantity at the second side of said carrier base opposite to said first side, whereby CO in air treated by the air- purifying filter is adsorbed onto the surface of said platinum group catalyst and thus decomposed by oxidization to CO.sub.2, whereas sulfur compounds in the air are also adsorbed onto the surface of said platinum group catalyst and then transferred to the surface of said photocatalyst where they are decomposed by oxidization to SO.sub.4.sup.2 when said photocatalyst is subjected to irradiation.

Pat. No. 5564065

A reaction chamber is filled with a fine fibrous material capable of holding powdered anatase titanium dioxide. Embedded in the fibrous mesh is a source of ultraviolet light that is used to photo-excite the titanium dioxide. Air containing carbon monoxide is passed through the reaction chamber, and carbon monoxide is oxidized to carbon dioxide which then passes out of the filter. An alternative embodiment is a rectangular plate several feet square containing fibrous material containing titanium dioxide. Ultraviolet light impinges on the fibrous material photo- exciting the titanium dioxide. When air from an HVAC system is passed through the filter, carbon monoxide is oxidized into carbon dioxide and thus effectively removed from the air. Ultraviolet light can alternatively be supplied to the filter via lossy optical waveguides or fiber optics. These waveguides may be coated with titanium dioxide or the titanium dioxide may be separately suspended in the filter

08137602 5433772 July 18, 1995

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT 5433772

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Link to Claims Section
◆ GET 1st DRAWING SHEET OF 4

July 18, 1995

Electrostatic air filter for mobile equipment
INVENTOR: Sikora, David, 15105 Meandering Pl. Dallas, TX 75248

Second pre-filter 23 provides for air purifying agents such as that sold under the trademark HOPCALITE, which acts as a catalyst for removal of carbon monoxide and other gases but can break down mechanically to produce a very fine dust. HOPCALITE, is a commercial product of Callery Chemical Co., Pittsburgh, Pa. The use of such material in a pre- ...

4768423 September 6, 1988

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT
4768423

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Link to Claims Section
◆ GET 1st DRAWING SHEET OF 2

September 6, 1988

Vehicle charcoal **air filter** assembly
INVENTOR: Boeger, Glen D., 1925 W. Cross Street Rd. Anderson, IN 46012

4244710 January 13, 1981

January 13, 1981

Air purification electrostatic charcoal **filter** and method

INVENTOR: Burger, Manfred R., Wolfratshauser Strasse 45j 8023 Pullach, DEX

APPL-NO: 05904305

FILED-DATE: May 9, 1978

GRANTED-DATE: January 13, 1981

CORE TERMS: filter, medium, microporous, scentstone, gas, charcoal, housing, electrode, ionization, activated ...

ENGLISH-ABST:

An air purification filter is provided which has a housing; an inlet in the housing for air to be purified; a microporous filter medium, activated charcoal, which is placed in the housing so that the air to be purified passes through this microporous filter medium. The microporous filter medium serves as an electrostatic filter, with the air, including the particulate matter in the air, being charged to one polarity just prior to reaching the microporous filter medium, and with the microporous filter medium itself being directly charged, with an electrode at the downstream surface of the microporous filter medium. In a preferred embodiment an odor neutralizing medium bearing a charge opposite to that of the microporous filter medium is placed upstream of the microporous filter medium.